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ABSTRACT

Representatives of the business community define workplace literacy according to how well informed are the spokespersons for business, how expansive is their view of the role of literacy, and the extent to which literacy bears on their firms' productivity. These elements affect business people's understanding of what constitutes workplace literacy, the purpose of being literate in the workplace, and who is responsible for developing a literate work force. Business and government must articulate the skills desired of workers to educators in order to influence the design of programs. Another debate in the business community is the extent of its interest or obligation in improving literacy or social conditions. Business leaders must recognize the impact of an undereducated public not only on the prospective labor pool but also on their future consumer/customer market. The Federal Government's role should be taking the long-term view on solutions, financing research, and providing incentives, whereas local communities (schools and businesses) should deal with specific programs. (Questions that can be used to investigate workplace literacy issues are suggested. The names, addresses, and phone numbers of 11 resources are given. The document contains four graphs.) (CML)

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MYTH #10:

BUSINESS CAN DEFINE WORKPLACE LITERACY

To paraphrase a song from "Damn Yankees," whatever business wants, business gets. That seems to be the situation today with respect to changing standards for workplace skills. Business leadership, to a large extent, is supporting major reforms in elementary and secondary education in order to meet its needs for a workforce with different and enhanced skills. It is investing an estimated $25 billion annually in worker training, much of which, corporate leaders say, is to compensate for skills not learned in school. The constant warning is that without greater literacy, we are doomed as global competitors. And that business will seek other solutions, such as the privatization of schools, if current institutions don't do better.

However, the message is not always clear. Is it about higher verbal and math skills? Or problem-solving and attitudinal skills? Is the problem one of less literate entry-level workers or greater literacy levels needed for the jobs? If 75% of the workers in the year 2000 already are in the workforce, whose job is it to produce higher skills--business, government or individual initiative?

To borrow from the business' theme, the "bottom line" seems to be that the message depends on how well informed are the spokespersons for business, how expansive is their view of the role of literacy, and the extent to which literacy bears on their firms' productivity.

Through several forums, business leaders have been asked over the past few months about their views of literacy and social conditions. The following interpretation comes from three sources: a conference on math literacy with representatives of major employer groups (defense, banking, manufacturing, retail and technology industries) sponsored by the Mathematical Sciences Education Board; an in-depth study of employer attitudes in the Philadelphia area by the Omega Group; and four focus groups of young business leaders around the country, conducted by the Peter D. Hart Research Associates, Inc., for the Center for National Policy. Workplace issues also were emphasized in "Jump Start," a report from the Southport Institute for Policy Analysis on the federal role in adult literacy.

How They Define the Problems

The definitions of the literacy needed among employees varies greatly. However, the Omega study, sponsored by the National Association of Broadcasters' Productivity Council, particularly found that many employers see literacy as a short-term problem caused by the current low unemployment rate. Many of the executives agreed that literacy was a problem in society, but they had not yet applied the consequences to their own organizations. Those in smaller businesses are not fully aware of the demographic trends that portend fewer employees (and military recruits) overall and greater numbers of poor and minority workers whose literacy levels traditionally have been lower.

Initially, the Hart focus groups viewed poverty "as separate from their own lives--as a community issue, certainly, but one that is mostly set apart from business, family, or personal interests," according to the report from the group discussions. Yet, when presented with detailed data about poverty and its effect on children, the participants shifted "their feelings on the issue...from low gear into high," and focused on finding workable solutions.

At the Mathematical Sciences Education Board conference in Irvine, Calif., the employers had different views about their needs for computational literacy. A retail

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industry such as Burger King Corporation needs workers who can do addition and subtraction in their heads, leading a company representative to argue against the classroom use of calculators. (Research, however, says calculators do not hinder simple mental math.) Other industries supported increased use of calculators so that students can focus on problem solving, estimating, probability and statistical variations, rather than expending effort crunching numbers.

Also, it is clear that not all companies--regardless of what sector of the economy they are in--feel the impact of demographics equally. Bill Pechatedt, president of a small wood products firm in Huntington Beach, Calif., said fewer than one in 10 job applicants had the arithmetic and estimating skills required for the mill jobs at his factory, even though they were good paying jobs.

But a company such as E.I. du Pont de Nemours & Co., said C. Thomas Sciance of the firm's planning department, has no trouble hiring highly skilled engineers. The company pays high salaries, offers interesting work and thus is able to "cherry pick" from among the most capable. He admitted, however, that the demographics do not auger well for a continuing pool of well-educated employees.

Banking industry representatives at the conference provided the most dramatic examples of how work has changed. In the past, local banks offered checking and savings accounts and relatively simple loans to a local market. Employees needed nothing more than simple arithmetic, an understanding of compound interest and accounting skills.

Today, the range of products offered by banks is much broader and must compete in a national marketplace. Employees must understand and explain the risk and return possible in several competing investment strategies, analyze their tax impact and use computers to track transactions.

In the future, bankers said, the competition for customers will be global, and employees must be able to function at even higher levels. They will be analyzing markets quantitatively, developing mathematical profit models, integrating a variety of investments, and using more complex software.

More Than Basics

Employers always want workers with the right "attitudes." Traditionally, that has meant a strong work ethic that enabled routinized jobs to be done smoothly. The organization of the public school classroom fits with this model.

Now, however, a large segment of the business sector is changing its views on "attitudes," broadening the definition to cover initiative, problem solving, teamwork and other such skills.

Again, the industries represented at the California conference illustrate this change. Harry Greenleaf of the Ford Motor Co. said the average production worker needed to understand the scientific method of experimentation in order to properly conduct quality control tests. Because production line workers are increasingly being organized into teams, he said, they need to have interpersonal and communication skills.

At IBM Corp., said C. Van Symons, manager of corporate development and training, production workers must understand the entire assembly process and their role in it. Automation doesn't eliminate production workers, he said, it merely changes their jobs, requiring them to have greater capacity for problem solving and decisionmaking, skills that improve with increased math training.

For the same reason, the Briggs and Stratton Co. of Milwaukee is considering requiring employees to have eight hours of college credit in blueprint reading, layout, math and computer science. It is not that these employees do complicated calculations, explained Judith Whipple, manager of corporate training. Rather, "they utilize thought patterns and skills developed by studying math, such as estimating, that allow them to schedule production, maintain accurate inventories and conduct quality control experiments."

A major conclusion from this conference was that both corporations

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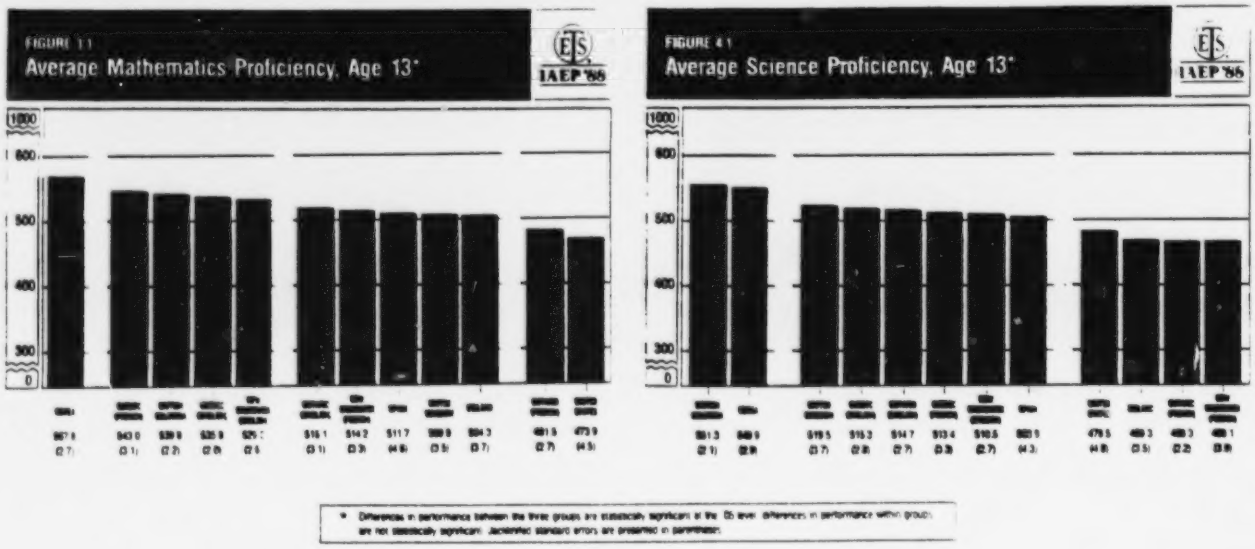
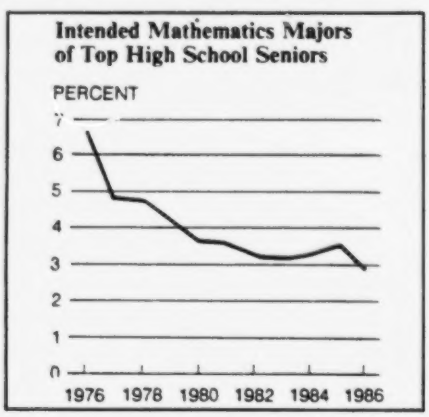
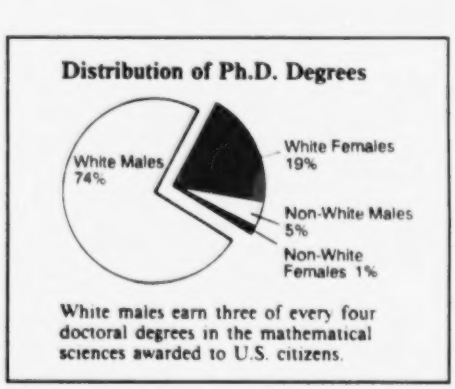
Business' concern about math skills apparently is on target. According to two reports issued in January, the performance of American students in mathematics and science is disillusioning.



The Educational Testing Service administered mathematics and science items to a representative sample of 13-year-olds in five countries and four provinces of Canada, two of them French-speaking. The average proficiency of American students was at the bottom in math, in the lowest grouping for science. Korean students outpaced all others in math and ranked second in science. The ETS report asks: Where will the world's innovative discoveries, new solutions, and creative products come from in the future? Does it matter? (*A World of Differences: An International Assessment of Mathematics and Science*, Educational Testing Service, Rosedale Rd., Princeton, NJ 08541-0001.)




Distribution of Ph.D. Degrees
White Males 74%
White Females 19%
Non-White Males 5%
Non-White Females 1%
White males earn three of every four doctoral degrees in the mathematical sciences awarded to U.S. citizens.

Everybody counts: A Report to the Nation on the Future of Mathematics Education notes that three-fourths of students in this country leave school without enough mathematics background to cope with on-the-job demands for problem solving or college expectations for mathematical literacy. Prepared by the Mathematical Sciences Education Board, of the National Research Council, the report proposes a national strategy with a strong role for business. Math education should move away from pencil-and-paper techniques, rote memorization and teacher lectures to more realistic problem solving and use of calculators and computers beginning in the early grades. The report also cites an alarming lack of career interest in the mathematical sciences. (National Academy Press, 2101 Constitution Avenue. NW, Washington, DC 20418; $7.95)

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and government have not gone far in describing, in more than general terms, what skills they would like their workers to have.

"People need to articulate their needs for these skills and bring that to the attention of educators," said John Clement, senior program officer for the Mathematical Sciences Education Board. "The onus for defining the product (of schools and colleges) lies with them."

A JOB FOR BUSINESS

Business needs to reach down into the pre-collegiate classrooms and let young people know they will give preference in hiring to those who have taken advanced math courses, advised Clifford Adelman and Nabeel Alsalam of the U.S. Department of Education at the California conference. They analyzed college transcripts of 1972 high school graduates and found a strong correlation between advanced math training and higher incomes. Men with at least four college-level courses earned 11 percent more than those with less; women with at least two advanced courses earned 14 percent more.

However, most college students take no advanced math. Nearly 80 percent of the women who earned a degree had no advanced math at all, nor did 55 percent of the men graduates. The researchers also found that one-fourth of math classes offered at four-year institutions were at the pre-collegiate level. A "powerful incentive" to change these patterns would be for business and industry to put out the message that they will be trying to hire and pay graduates who have taken specific, higher-level courses, the researchers said.

Barbara Scott Nelson of the Ford Foundation points out, however, that interest in science and engineering peaks in the middle grades; after high school there is almost no migration into math-related fields.

Literacy for What?

Another debate occurring within the business community is how far their interest/obligation should go in improving literacy or social conditions.

The Omega Group study in Philadelphia found wide differences between those employers who said they were interested in developing the skills of workers for their company's purposes and those who went beyond that goal and said developing skills also was important to improve the quality of life for a worker.

For the former, literacy is a "bottom line" issue; for the latter, it is a societal issue for which specific job training only provides a short-term solution.

"The expanded view of the worker includes work skills literacy *and* personal literacy," said Renee Love, CEO of the Omega Group. "In this context, the organization's responsibility to the worker includes the workers' expanding capacity to function independently, think for themselves, make decisions, solve problems and sutain themselves as family members and citizens."

The bottom line issue came up in the focus groups with young business leaders on their attitudes about poverty. They perceived their own business community as lacking an understanding of the impact of poverty and illiteracy. Says the report:

"They explain that business is unwilling to commit resources to problems of the poor because the underclass is perceived as having very little to do with corporate success or failure.... Most participants speculate that as corporations realize the growing underclass's direct impact on business, they will act.... (They) conclude that the only thing that can be counted on is a corporation's desire to act in its own financial best interest."

Two other issues were touched upon in these various discussions, although not extensively. These were: the impact of having a growing undereducated public as consumers/customers; and the need for *all* employees, not just the undereducated, to be retrained, the thesis being that everyone needs to work "smarter."

Who Is Responsible?

Part of the business push on public schools to upgrade their standards stems from the private sector's impatience with retraining of workers.

In the future, C. Van Symons of IBM told the California meeting, "industry cannot afford to, or will choose not to continue to bear the high cost of training every employee in the basic skills."

Texas Instruments spends $38 million annually on company training programs and university education programs, said Samuel Webster, Jr., manager of university relations for the firm. It does not spend anything on K-12 education because, according to Webster, the return is perceived by his company to be poor.

Public schools, he said, focus more resources on athletics than on academics: "If the infrastrucutre cannot produce the educated workforce required by industry, it may be best that industry use its funds to explore other alternatives."

However, a former business executive questions the corporate assessment of the need for retraining. Peter Goldberg, former vice president of Primerica Corporation, asks how much of the estimated $25 billion spent on training is for retraining needs due to applications of technology and people changing jobs, and how much is to compensate for poorer education in the schools. "The tendency has been to off-load all of the problems onto the schools and it is not clear they belong there."

The focus groups of young business leaders were dissatisfied with large-scale federal programs (unless they had data to show they worked). Efficiency, rather than compassion, was important. The federal government, they said, should take the long-term view on solutions, while local communities should deal with specific programs.

"The business community is seen as very unlikely to be willing to assume any responsibility for addressing problems of the underclass," says the report, "but it is perceived as willing to take on special projects if it gets an incentive from the government." Education, however, was seen as a worthwhile investment, even though the payoff would not be immediate.

A JOB FOR THE FEDS

Workforce literacy, the focus of a new study by the Southport Institute for Policy Analysis, is the first major look at a restructured federal role in adult literacy. "At present, the field of basic skills education is intellectually, institutionally, and politically weak and fragmented," says the study, *Jump Start*, written by Forrest Chisman, director of the institute's Washington office.

The federal role should be to "jump start" a greater national effort. This would include financing basic and applied research, promoting innovation and the use of technology, and providing incentives to states to improve the quality of adult literacy programs, especially teacher preparation.

The Omega Group study, on the other hand, found the business community more willing to be involved in finding solutions to worker literacy. They wanted better communication within the business community about the costs of illiteracy and about successful literacy programs in the workplace and the community.

INVESTIGATING WORKPLACE LITERACY ISSUES

* Business involvement in the schools has increased, but how much of this involvement actually addresses the issue of heightened skills? Or, where programs are directly improving the skills of students, is there a "creaming" effect which benefits those students who would have chosen math/science/technical careers anyway?
* What are local businesses doing to communicate their skill needs to the schools? To the universities?
* Has the content of math/science changed in the schools, along with increased requirements? How many students enter high school prepared to take advanced courses? What is the math/science content for those in the vocational track?

* Contrast the math skills needed in an industry which has undergone technological changes with the skills of the average high school graduate. Ask a math teacher and a manager of corporate training to accompany you to the worksite and get their reactions. What opportunities are there in the community for adults to acquire the math skills necessary?
* Interview workers who have lost their jobs or been passed over for promotion as to their views about their skills. What would, and would not, encourage them to improve their skills?
* Conduct focus groups of business leaders on their views of literacy needs, on the "bottom line" versus broader goals, on who should be responsible. Do they take short-range or long-range views of solutions? Are there differences between small and large businesses? Who employs most of the high school graduates?

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